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of Engineers®**
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Information Paper

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Juvenile Fish Passage Improvements, Bonneville Lock and Dam

Second Powerhouse Corner Collector/Bypass



When the new surface flow bypass facility for young salmon is completed in December 2003, federal biologists expect to see a 1 percent to 3 percent increase in juvenile fish survival past the Bonneville second powerhouse.

Earlier field testing indicated about 40 percent of juvenile fish in the forebay (area directly upstream) of the second powerhouse were passing through the existing ice and trash chute during downstream migration. By modifying the chute into a high flow surface bypass system (called a corner collector), about 50 percent to 60 percent of juvenile fish entering the forebay will be guided into the corner collector, passed without injury, and returned safely to the river at a location further downstream.

The corner collector facility includes a 2,800-foot long transportation channel, a 500-foot long outfall channel, a plunge pool, and modification of the ice and trash chute to ensure safe passage. The bypass flume will begin at the southeastern corner of the second powerhouse. The fish will re-enter the water just beyond the westernmost tip of Cascades Island, almost one-quarter mile downstream of the second powerhouse. A plunge pool excavated into the river bottom will permit fish to re-enter the river and avoid injuries that might occur at lower river levels.

The corner collector will work in conjunction with the existing second powerhouse screened juvenile bypass system, which began bypassing migrating fish in 1999. Together, the non-turbine routes will pass about 90 percent of all juvenile fish at the second powerhouse with an estimated survival rate of greater than 95 percent.

Oregon and Washington fisheries agencies, the National Marine Fisheries Service, the Bonneville Power Administration, the Tribes and the Corps have all endorsed the value of this construction project to increase juvenile fish survival through Bonneville.

The system will be completed in time for the Spring 2004 juvenile salmon migration.

Costs:

The cost estimate, including past costs and post construction monitoring, is about \$55 million. In July 2002, a \$32 million contract was awarded to Kiewit-Mason of Vancouver, Wash., to construct the bypass facility.

The Future:

Bonneville Dam first powerhouse juvenile fish passage system improvements also are on the regional agenda. Potential improvements could include a transportation flume to carry juvenile fish across the river to the monitoring building on the Washington side of the project, and from there to the outfall relocated as part of the screened bypass improvements in the late 1990s. Corps engineers put preliminary estimates for the first powerhouse improvements at about \$85 million. A regional decision regarding construction of first powerhouse passage system improvements or continued development of a surface bypass system at the first powerhouse is pending.

Who decides what fisheries projects get done?

Two regional bodies establish fisheries priorities: the System Configuration Team (SCT) and the Implementation Team (IT). Both forums include representatives of the NMFS, US Fish and Wildlife Service, Bonneville Power Administration, Bureau of Reclamation, state fish and wildlife agencies of Oregon, Washington and Idaho, Northwest Power and Conservation Council and the Corps.

The Bonneville construction and actions at other Corps dams are being done by the Corps to improve fish passage at its Columbia and Snake River dams. The Corps continues to work with its regional partners – government, public and private—to preserve the valuable fish runs on the Columbia and Snake rivers.

Bonneville Lock and Dam, built and operated by the Corps, is located 40 miles east of Portland, Ore., on the Columbia River.